Washington Military Department	Effective Date: December 2004	Page 1 of 2
Emergency Management Division, Enhanced 911 Unit	**E911 Clock Synchronizer Support Policy**	

Policy **Clock Synchronizer Support Policy**

A Clock Synchronizer is eligible for reimbursement as an eligible Enhanced 911 expense in accordance with WAC 118-66-050.

This policy applies to all Washington State Counties that have operations contracts with the State E911 Office.

Background

I. To insure consistency of time stamps added to event records, reports and voice recordings, it is required that equipment such as CAD, ANI/ALI Controllers, Premise Computers, Voice Recorders, Radio Consoles, etc., will have the ability to synchronize internal clocks to a Public Safety Answering Point (PSAP) master clock. This requirement complies with NENA-04-002 recommended standard.

II. Prior to approval of this policy, the State E911 Office has reimbursed $5,000 towards the purchase of a Clock Synchronizer and after warranty maintenance not to exceed 10 percent of the original eligible purchase price per year.

Analysis

I. A master clock synchronizer is recommended as equipment that should be operational in all PSAPs. Its 911 functionality is solely due to the need to assure that electronic records of 911 events captured at the PSAP can be verified for the sequence of events for post event analysis.

II. As the number of electronic systems increases at the PSAP, the difficulty of post event analysis is increased dramatically if system operational records cannot be compared against a common time standard.

III. Technical considerations for Mater Clock Synchronizers have been developed that assure consistency in application of the technology.

IV. The PSAP master clock shall be traceable to Coordinated Universal Time (UTC) and have a continuous accuracy of **.1 seconds relative to UTC** when locked to the UTC time source. In the event the PSAP master clock becomes unlocked from the external UTC source and must "free run", it will not exceed an error accumulation of more than 1 second per day.

V. The PSAP master clock system shall have a front panel Display to indicate time and shall have the optional capability to provide time codes via an RS-232 serial, IRIG (**I**nter **R**ange **I**nstrumentation **G**roup), and Ethernet 10 / 100 Base T interfaces. These interfaces will provide a time code that will be used by the PSAP equipment to synchronize their internal

clocks. The master clock must have the ability to automatically adjust the Master Clock Display, RS-232 and IRIG time codes for Daylight Saving Time. It must have a selectable 12 or 24-hour display of Hours, Minutes and Seconds. It must have a means to indicate its status; locked / unlocked and time synchronized or unsynchronized to the external UTC time source. The master clock shall have alarm dry contact closures that are activated upon loss of power or when the clock has lost time synchronization. Optionally, equipment synchronizing to the ASCII time code data may derive alarm status by monitoring the Time Sync Status character within the data stream.

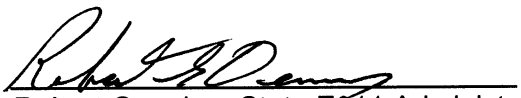
VI. When developing site requirements for a PSAP it is important to consider that the type and number of time code interfaces required for each site will vary according to Customer Premise Equipment (CPE) type, quantity, and manufacturer. The PSAP Master Clock system therefore must be configured accordingly to meet the quantity and types of time code interfaces required.

VII. It is desirable that the PSAP master clock be connected to an uninterruptible power supply (UPS) or be equipped with internal batteries which are continually charged from main power. If equipped with internal batteries, the batteries must be capable of powering the equipment for a minimum of 15 minutes.

VIII. Equipment connected to the master clock must maintain a continuous accuracy of plus or minus **.25 seconds relative to the PSAP master clock**.

Decision

I. The State E911 Office will reimburse eligible counties for the purchase and installation of the hardware and software components required for a basic Clock Synchronizer as recommended by NENA-04-002 Technical Reference Public Safety Answering Point (PSAP) Master Clock Standard requirements and the necessary modules purchased at the same time to integrate the master clock signaling to the PSAP's electronic systems. The requested amount must be reasonable, prudent, and applicable to 911. Prior to purchase the proposed configuration and amount that will be requested for reimbursement must have received written approval from the State E911 Coordinator. Maintenance of a Clock Synchronizer will not exceed 10 percent of the original eligible purchase price, including associated interface modules, per year. The expenses associated with Clock Synchronizers will be treated as a joint wireless and wireline cost (Common Element).

Approved by: 
Robert Oenning, State E911 Administrator

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